

Remarks/Arguments

The present amendment is made in response to the Office Action dated December 29, 2004, and identified as Paper No. 12232004. Claims 1-20 are pending in the application.

In the Action, the Examiner objected to claims 14 and 19 for formalities. Claims 1-20 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,947,053 to Burnham et al. ("*Burnham*").

With regard to the objections to claims 14 and 19, Applicant has amended the claims to correct the informalities.

With regard to the rejection of claim 1-20, the Examiner has not state a prima facie case of anticipation under 35 U.S.C. § 102(b) as *Burnham* does not in fact disclose all of the elements of the claimed invention. *Burnham* discloses a system for indicating wear to semiconductor manufacturing tool parts where the tool parts are manufactured in erodable layers that are capable of analytic detection once a particular layer vaporizes. Col. 4, ll. 1-11. During use, the outer layer of the tool is eroded and will eventually expose the indicator layer beneath. Col. 4, ll. 18-24. As the indicator layer is eroded, liberated indicator layer particulates are detected by analytic equipment and the user may be signaled that maintenance is required. Col. 4, ll. 24-28. The system of *Burnham* thus requires the manufacturing of special parts having at least one layer of an indicator material composed of a substance which is detectable once eroded and dispersed into the eroding fluid.

The present invention avoids the need for special tools or tool manufacturing processes and instead requires only the addition of a shim of indicator material in a conventional etching system. In particular, claim 1 calls for "[a]n indicator for detecting wear to at least one selected part in a semiconductor manufacturing environment, said indicator comprising: a selected

material having a selected thickness; wherein said indicator degrades upon exposure to the semiconductor manufacturing environment at a fixed rate relative to the wear of the selected part; and wherein the indicator displays a visual indication of wear of the select part, said visual indication being discernible by an automated detection device.” The other independent claims of the present invention contain comparable limitations.

As explained in the specification, the indicator generally comprises a shim or plate in addition to the tooling, which has the same composition as the tooling (or a composition with a known, fixed etch/wear rate relative to the etch rate of the tooling). Paragraph [0020]. As the tooling is degraded by the etching process, the indicator shim will be degraded at a relative rate and become distorted, thereby visibly indicating when repairs are needed. Paragraph [0022]. The only detection equipment required by the present invention is a photo detector or laser that can detect the degree of deformation of the indicator shim. Paragraph [0023].

Although *Burnham* discloses an indicator system formed from a layer of an indicator material, this is where the similarity to the present invention ends. *Burnham* does not disclose an indicator which degrades at a rate equal to or even relative to the tool part. In the portion of the specification relied on by the Examiner as teaching a relative wear rate, *Burnham* actually discloses how a user can calculate the erosion rate of a particular layer. Col. 9, ll. 30-31 (“The user can also use this method to determine the erosion rate of indicatory material type #1”). *Burnham* does not teach that the etch rate of the indicator layer should relate to the etch rate of the tool. The system of *Burnham* instead indicates wear completely independently of the rate of wear of the indicator material, and does not disclose that the use of a material having a comparable or relative wear rate is advantageous or even desired. In fact, *Burnham* relies on the etching of a special coating layer provided over the indicator layer, so the etching of the tool


itself is not even taken into consideration. Thus, the limitation in the claims of the present invention calling for the indicator to degrade “at a fixed rate relative to the wear of the selected part” is not disclosed, taught, or even suggested by *Burnham* and the rejection is improper.

Burham also fails to disclose an indicator which visibly changes to point out when maintenance is required, as affirmatively recited in the claim. Rather than including a layer which visually deforms and may thus be detected by a light beam or photo detector, *Burham* discloses an indicator layer which must be evaporated into the surrounding etching chamber and then detected by sophisticated (and costly) analytical equipment that is constantly sampling the ambient atmosphere in the chamber. Col. 6, ll. 61-67 (calling for use of residual gas analyzer, plasma probe, or spectroscope). While a broad definition of “detection device” might encompass the analytical equipment of *Burnham*, the indicator layer of *Burnham* is not perceived visually but through chemical analysis of its evaporate. Thus, there are at least two limitations in the independent claims of the present invention that are entirely absent from *Burnham*.

In view of the foregoing amendments as supported by these remarks, the Examiner’s reconsideration is requested and allowance of the present application is believed to be in order. If the Examiner believes a phone conference with Applicant’s attorney would expedite prosecution of this application, he is respectfully requested to contact him at (315) 218-8515.

Respectfully submitted,

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